

IN THE CLAIMS

What is claimed is:

- 1    **1.**    A dynamic server directory system, comprising:
  - 2                    at least one relational table that includes a plurality of entries that can
  - 3                    each store location data, status data, and feature data of server processes in a
  - 4                    distributed computing system that services client requests; and
  - 5                    an interface that may provide at least one entry from the at least one
  - 6                    relational table to a client.
- 1    **2.**    The dynamic server directory system of claim 1, wherein:
  - 2                    the location data of an entry may comprise a network address; and
  - 3                    the entry may include a server name to identify a specific server at the
  - 4                    network address.
- 1    **3.**    The dynamic server directory system of claim 1, further including:
  - 2                    a route table that can indicate at least one communication route to a
  - 3                    server host and the status of said route.
- 1    **4.**    The dynamic server directory system of claim 1, further including:
  - 2                    a plurality of dynamic server directory agents that reside on different
  - 3                    host machines than the dynamic server directory, each dynamic server directory agent
  - 4                    caching at least a portion of the at least one relational table.

1 5. The dynamic server directory system of claim 1, wherein:  
2 the relational table includes a key field that may be searched by a key  
3 prefix value that can filter entries according to client request criteria

1 6. The dynamic server directory system of claim 1, further including:  
2 a plurality of dynamic server directory agents that reside on different  
3 host machines than the dynamic server directory, each dynamic server  
4 directory agent forwarding new server process information to the dynamic  
5 server directory when a new server process is added; and

6 the dynamic server directory creating a new entry in the at least one  
7 relational table corresponding to the server process and forwarding the  
8 updated relational table to dynamic server directory agents.

1 7. The dynamic server directory system of claim 1, wherein:  
2 the distributed computing system includes at least two subsystems that  
3 provide different functions; and

4 the at least one relational table includes a plurality of relational tables,  
5 each relational table including entries corresponding to server processes of  
6 one of the subsystems.

1 8. The dynamic server directory system of claim 1, wherein:  
2 the at least one relational table includes a server relational table that  
3 identifies a server route corresponding to a given server process and a route

4 relational table that identifies a communication route corresponding to a given  
5 host machine.

1 9. The dynamic server directory system of claim 8, further including:  
2 the interface searches the server relational table and then the route  
3 relational table to determine the route to a host machine for a given server  
4 process.

1 10. The dynamic server directory system of claim 1, further including:  
2 a plurality of dynamic server directory agents that reside on different  
3 host machines than the dynamic server directory, each dynamic server  
4 directory agent receiving periodic status communications from at least one  
5 server process and notifying the dynamic server directory when status  
6 communications fail; and  
7 the dynamic server directory changes entries in the at least one  
8 relational table in response to status communication failures.

1 11. The dynamic server directory of claim 10, further including:  
2 a service master process that may subscribe with the DSD agent to be  
3 notified of changes to the at least one relational table, the service master  
4 performing at least one predetermined error response when the change to the  
5 at least one relational table indicates a status communication failure has  
6 occurred in a server process; and

7 the dynamic server directory forwards changes in the at least one  
8 relational table to the DSD agent.

1 12. The dynamic server directory of claim 11, wherein:

2 the predetermined error response may be at least one response selected  
3 from the group consisting of: attempting to restart the server process  
4 corresponding to the failure, logging the failure error, notifying a system  
5 administrator, generating a work order for the server process corresponding to  
6 the error, activating another server process as a back-up to the server process  
7 corresponding to the failure, shutting down a host machine for the server  
8 process corresponding to the failure, and rebooting a host machine for the  
9 server process corresponding to the failure.

1 13. The dynamic server directory of claim 1, wherein:

2 a plurality of client processes that may subscribe to be notified of changes to  
3 the at least one relational table, a client process performing a resubmission of all  
4 requests sent on a particular currently valid server route when the change to the at  
5 least one relational table indicates a failure in the server process, or the route to the  
6 server process.

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1    **14.**    A system, comprising:

2               a plurality of servers that may perform predetermined operations

3               according to requests from clients; and

4               a dynamic server directory that includes a plurality of relational tables,

5               each relational table storing feature information for the plurality of servers, the

6               feature information being accessible by a client to determine which server

7               may service a particular client request; and

8               a plurality of dynamic server directory agents that may perform

9               predetermined operations according to client subscriptions.

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1    **15.**    The system of claim 14, wherein:

2               the plurality of servers include storage servers that may access stored

3               files and metadata servers that may access metadata for the stored files.

1    **16.**    The system of claim 14, wherein:

2               the dynamic server directory agent includes an interface that may

3               provide access to the relational tables in response to an action selected from

4               the group consisting of: the addition of a new entry to a relational table,

5               deletion of a entry from a relational table, search for a key, search for a server,

6               subscription to notification of changes in status, and maintenance of current

7               process information..

1    **17.**    The system of claim 14, further including:

2                   the plurality of servers reside on server host machines; and  
3                   each server host machine further includes a dynamic server directory  
4                   agent that caches at least a portion of at least one relational table and is  
5                   accessible by a client.

1    18.    A method of controlling client requests in a distributed computing system having a  
2    plurality of servers, comprising the steps of:

1     **19.**     The method of claim 18, wherein:

